

Figure S1. Locations of ozonesondes (green stars) and selected WP-3D daytime flight legs below 1.5 km over in the LA Basin (blue) and the Central Valley (red) of California during CalNex 2010.

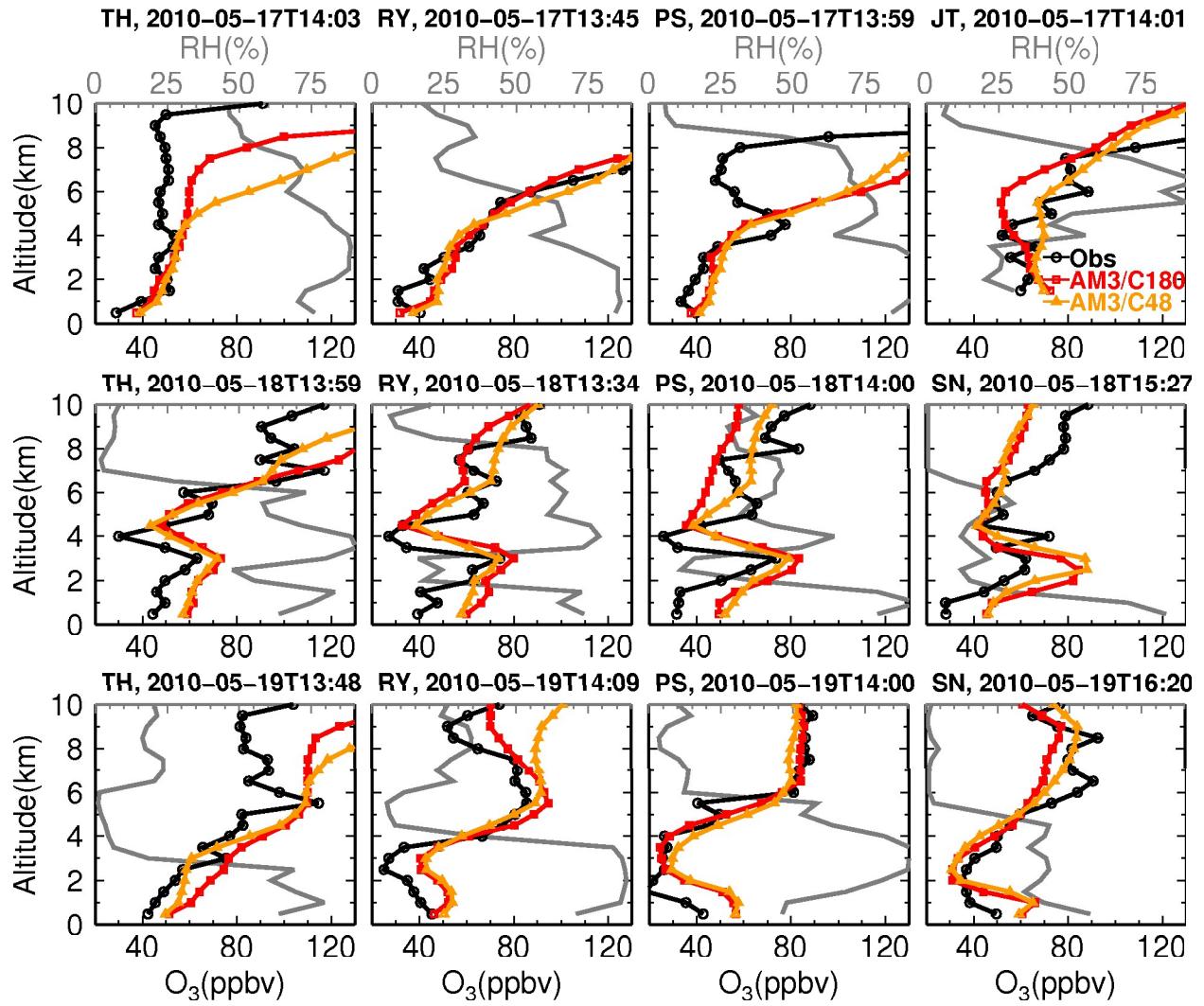


Figure S2. Comparison of AM3/C48 ($\sim 163\text{-}231$ km, orange) and AM3/C180 ($\sim 43\text{-}62$ km, red) O₃ vertical profiles with ozonesondes (black, locations shown in Fig. S1) in California during a stratospheric intrusion and Asian pollution event on 17–19 May 2010 (Section 3.1). Also shown is measured relative humidity (gray).

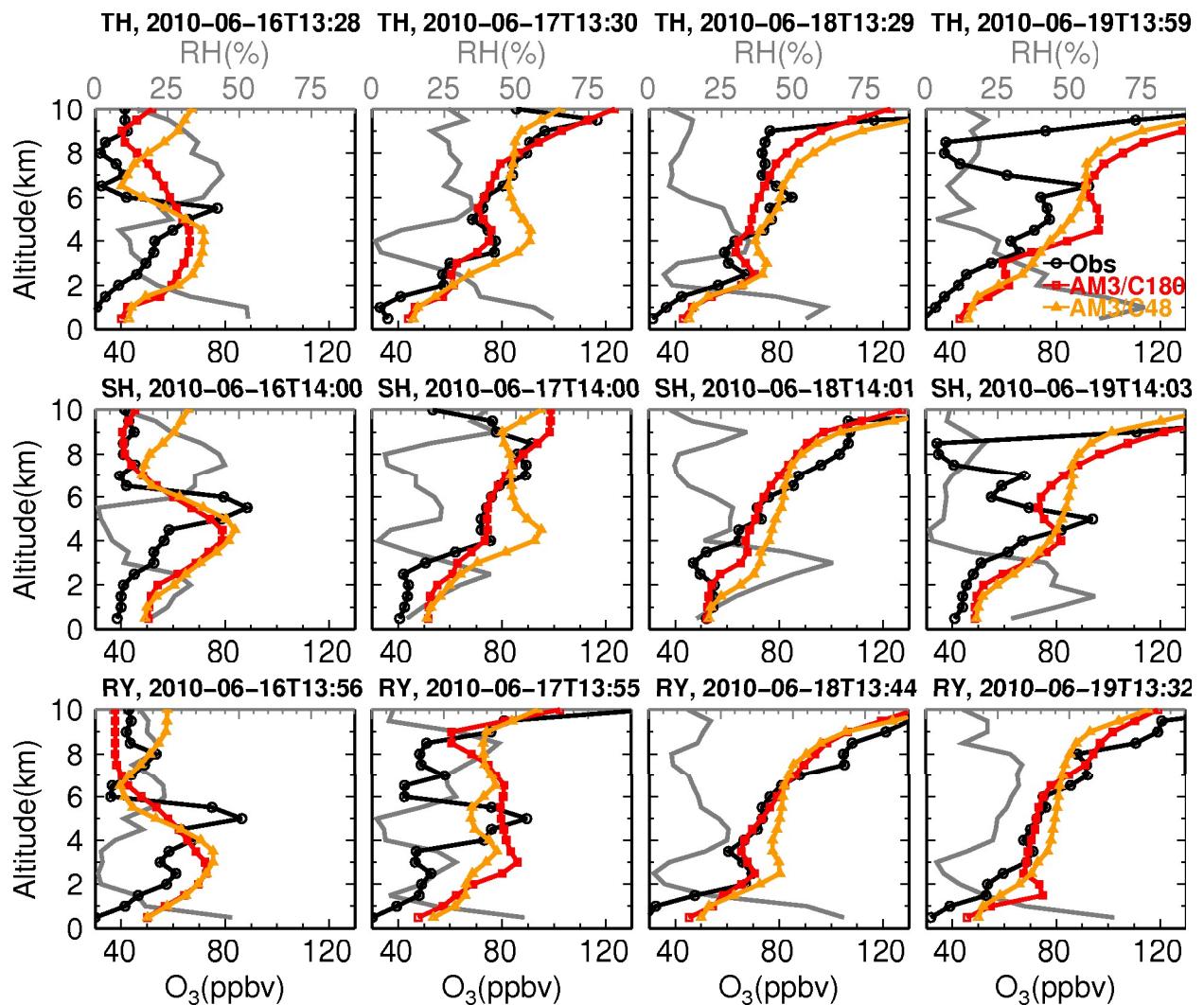


Figure S3. As in Figure S2, but for 16-19 June 2010 (Section 3.2).

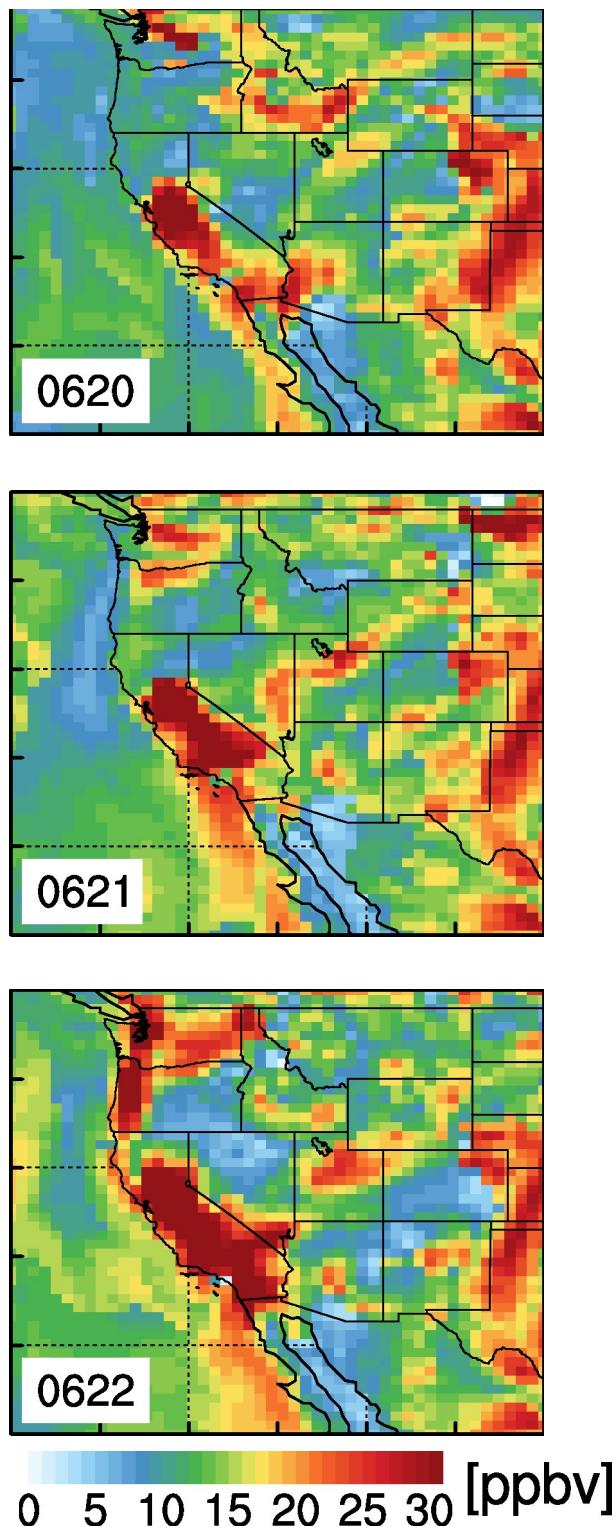


Figure S4. Contribution of North American anthropogenic emissions to MDA8 O₃ in the model surface layer on June 20-22, 2010, as determined by the difference between the base simulation and a sensitivity simulation with North American anthropogenic emissions turned off.

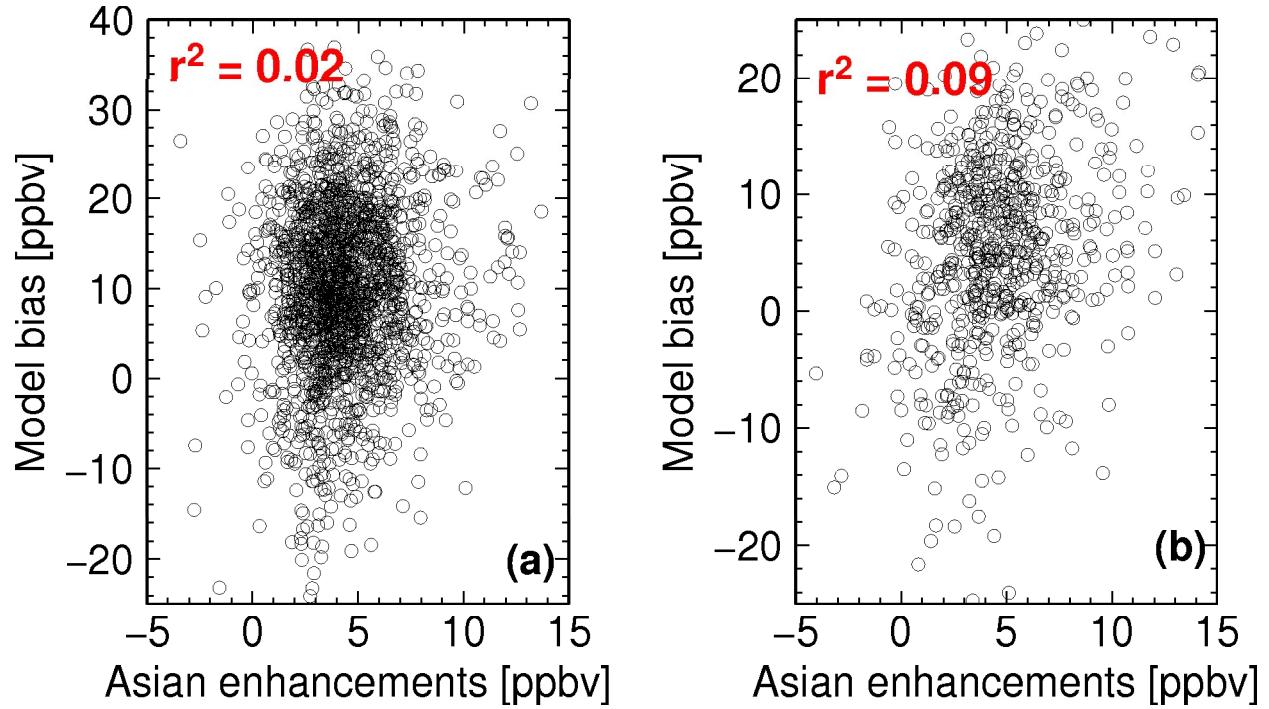


Figure S5. Scatter plot of Asian enhancements vs. model biases in MDA8 O₃, sampled in the model surface layer, (a) for all AQS sites in the southwest U.S. (box in Fig.12a) and (b) for CASTNet high-elevation sites (white symbols in Fig.12b).

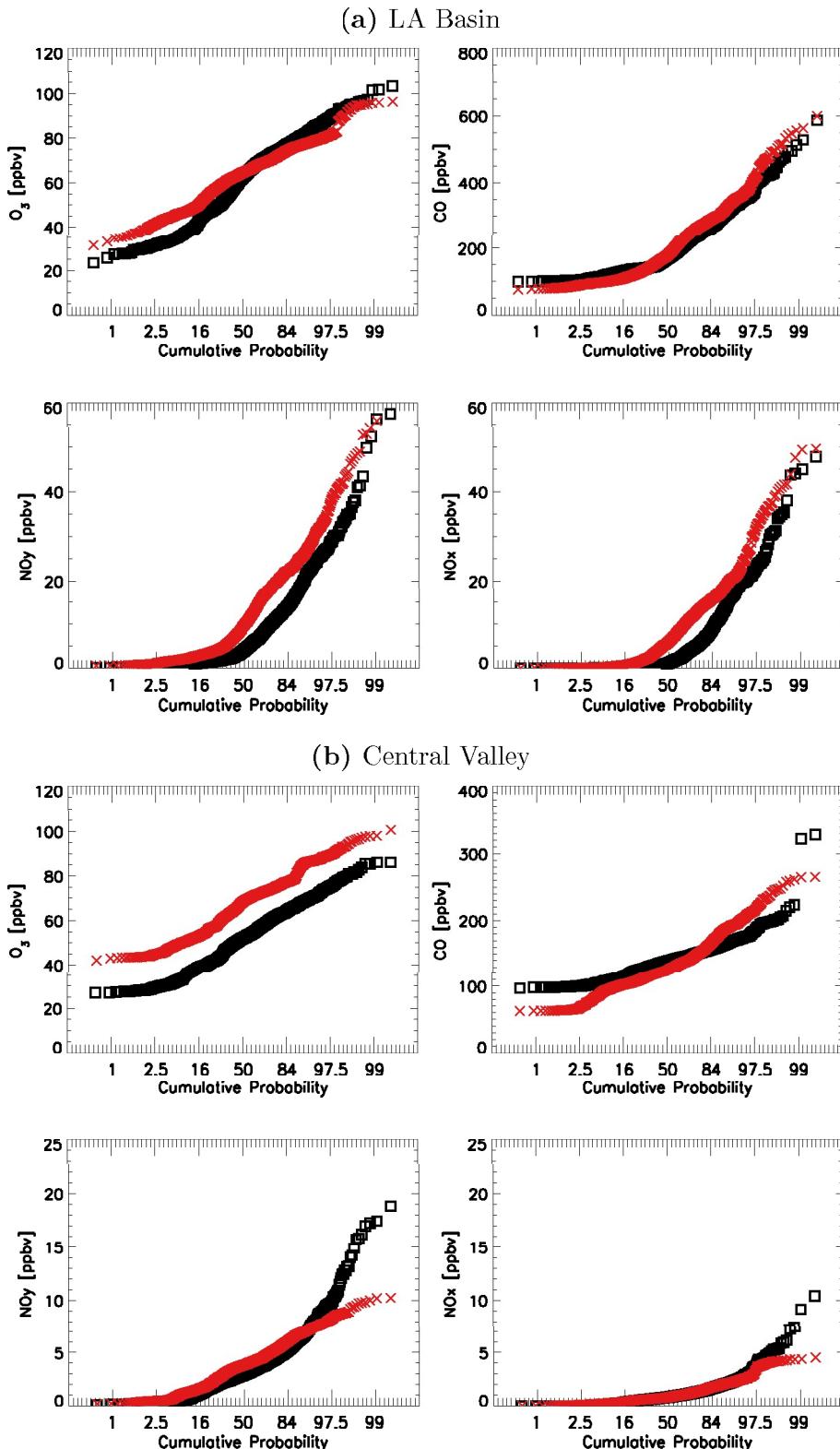


Figure S6. Comparison of cumulative probability distributions of O₃, CO, NO_y, and NO_x from WP-3D measurements (black) and results from AM3/C180 (red) sampled at WP-3D flight tracks below 1.5 km over (a) the LA Basin and (b) the Central Valley shown in Fig. S1

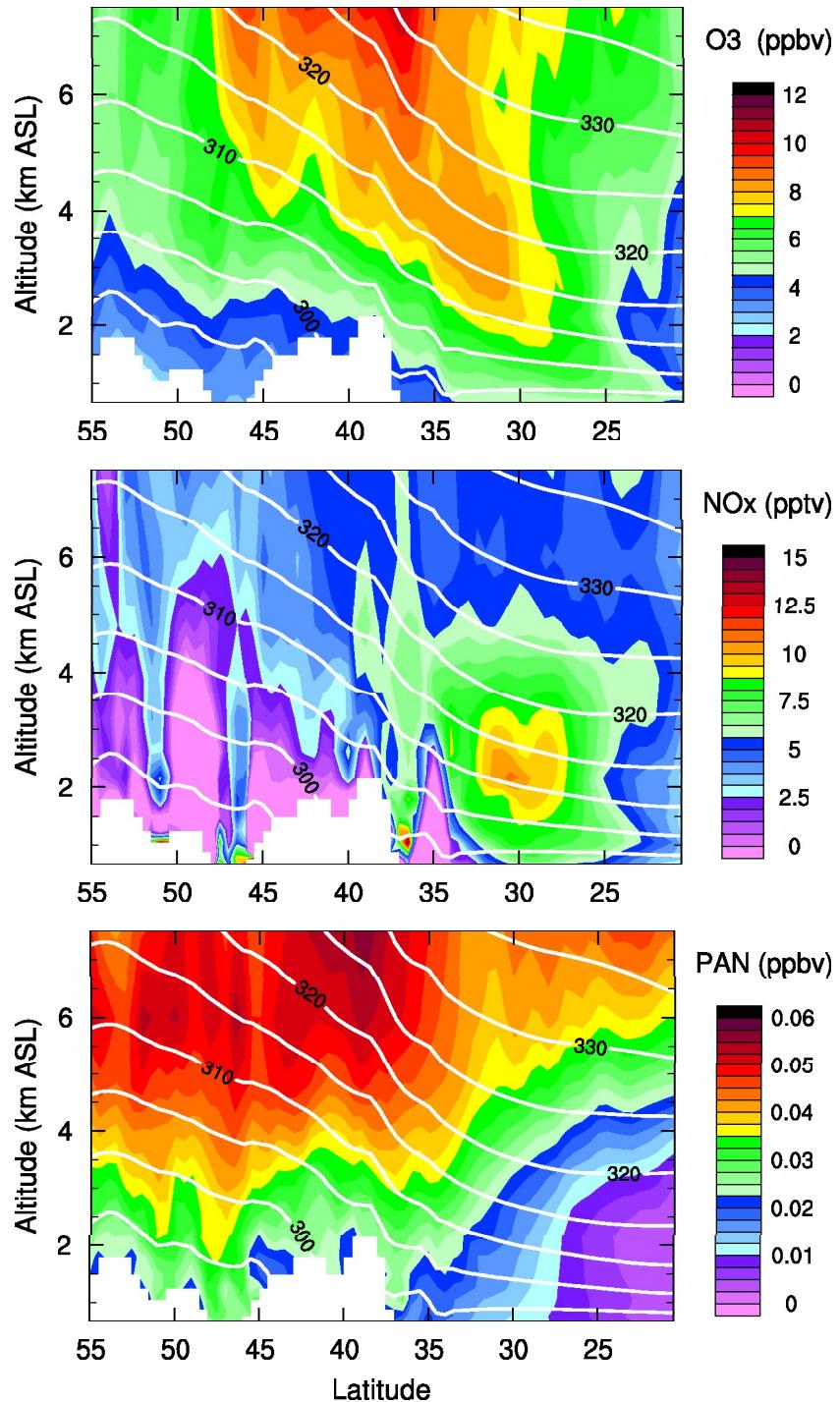


Figure S7. May-June 2010 mean vertical distributions of Asian anthropogenic enhancements to O_3 , NO_x , and PAN with isentropic surfaces (contours, K) along a north-south transect at 120°W . Note that the unit for Asian NO_x is pptv.

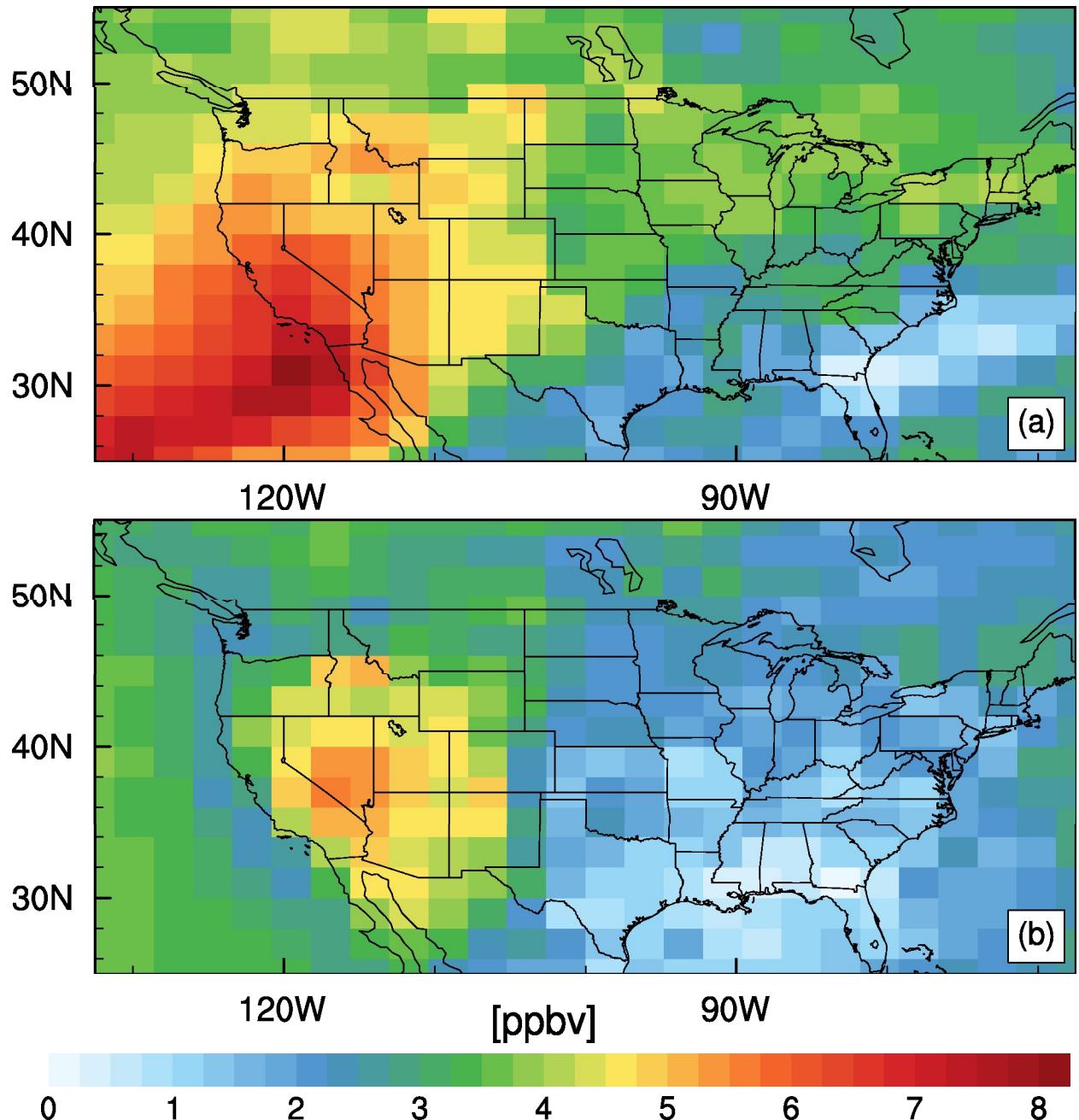


Figure S8. May-June 2010 mean Asian anthropogenic enhancements to (a) O₃ at ~ 800 hPa and (b) MDA8 O₃ in surface air estimated with the GFDL AM3 model at C48 horizontal resolution.